AMENDMENTS TO THE SPECIFICATION

Please delete the abstract and replace it with the following.

--An illustrative intelligent network and method for providing voice telephony over Asynchronous Transfer Mode ("ATM") and private address translation are provided that can provide significant advantages. The method includes generating an input ATM setup message at the calling party CPE that includes a VToA designator and a called party phone number, extracting information from the input ATM setup message, analyzing the information, designating an ATM address of a called party CPE to be stored in the first parameter of an output ATM setup message, determining if private address translation is needed, designating the ATM address of the called party CPE to be stored in a first instance of the second parameter of the output ATM setup message, designating an ATM address of an egress ATM edge switch to be stored in the first parameter of the output ATM setup message, and generating an output ATM setup message.

Please amend the paragraph starting on page 1, line 5, as follows.

Pursuant to 35 U.S.C. 119(e), this application claims the benefit of U.S. Provisional Patent Application No. 60/176,928, entitled *FAST MSCP*, ~~docket no. RIC00011PR,~~ filed January 20, 2000, that named John K. Gallant, Steven R. Donovan, Terry A. Caterisano, Robert H. Barnhouse, David E. McDysan, Saib Jarrar, Thomas Glenn Hall, Jr., and Terry Robb as inventors, and which is hereby incorporated by reference for all purposes.

Please amend the paragraph starting on page 1, line 13, as follows.

This application is related to United States Patent Application Serial No. ~~—/~~ 09/768,068, entitled *Intelligent Network and Method for Providing Voice Telephony over ATM*, ~~docket no. RIC00018,~~ and named John K. Gallant, Thomas Glenn Hall, Jr., and Robert H. Barnhouse as joint inventors; United States Patent Application Serial No. ~~—/——~~ 09/768,070, entitled *Intelligent Network and Method for Providing Voice Telephony over ATM and Alias Addressing*, ~~docket no.~~

~~RIC00019,~~ and named John K. Gallant as inventor; United States Patent Application Serial No. ~~—/———~~ 09/767,476, entitled *Intelligent Network and Method for Providing Voice Telephony over ATM and Closed User Groups*, ~~docket no. RIC00020,~~ and named Thomas Glenn Hall, Jr. and Steven R. Donovan as joint inventors; United States Patent Application Serial No. ~~—/———~~ 09/768,069, entitled *Intelligent Network and Method for Providing Voice Telephony over ATM and Point-to-Multipoint Connectivity*, ~~docket no. RIC00025,~~ and named Thomas Glenn Hall, Jr. as inventor; and United States Patent Application Serial No. ~~—/———~~ 09/766,943, entitled *Intelligent Policy Server System and Method for Bandwidth Control in an ATM Network*, ~~docket no. RIC00016,~~ and named John K. Gallant, Thomas Glenn Hall, Jr. and Steven R. Donovan as joint inventors; all filed on January 22, 2001, and all of which are hereby incorporated by reference for all purposes.

Please amend the paragraph starting on page 6, line 10, as follows.

To setup and establish a Switched Virtual Circuit ("SVC") to support VToA or an ATM data transfer between a calling party and a called party, various signaling or ATM messages are used within the ATM network. This may be achieved using ATM setup and connect messages. Once ATM signaling has established ~~an~~ a SVC, a data connection is defined and data, such as data for a computer file or for voice encoded data, may be communicated. Data may continue to be communicated until one end of the SVC issues a release message (or any similar message that causes a disconnection). At such time, the SVC is released and voice communications ceases. Examples of traditional ATM signaling used to setup and release point-to-point and point-to-multipoint SVCs for data or telephony applications is illustrated in the book entitled *Hands-On ATM* by David E. McDysan and Darren L. Spohn, which is incorporated herein for all purposes.

Please amend the paragraph starting on page 6, line 27, as follows.

In a traditional telecommunications or voice network, signaling can be in-band or out-of-band. Signaling may be used to setup and establish voice circuits, to provide Intelligent Network ("IN") or Advanced Intelligent Network ("AIN") services

and features, and to disconnect voice circuits. In an ATM network, where ~~an~~ a SVC is established to support VToA, signaling is achieved through the use of ATM messages, such as those used to setup and disconnect SVCs. Unfortunately, such ATM signaling does not support IN or AIN to provide the advanced telephony services and features commonly found in traditional voice telecommunications networks. This significantly reduces the attractiveness of VToA as compared to traditional voice telecommunications networks or even some other data or packet networks capable of providing voice or telephony communications services.

Please amend the paragraph starting on page 15, line 31, as follows.

The intelligent network 12 is operable to intercept and process ATM signaling messages provided to the ATM edge switch 14 and the ATM edge switch 16. This architecture allows the intelligent network 12 to provide various telephony features and services, including advanced telephony features and services, to VToA provided over an ATM network, such as the ATM network 18, through ~~an~~ a SVC.

Please amend the paragraph beginning on page 17, line 29, as follows.

The communications link between the ATM edge switch and the calling party or called party location may be provided using any number of available links, such as dedicated links or leased lines. According to an aspect of the present invention, whenever a customer location desires to set up or establish ~~an~~ a SVC to support VToA, a signaling ATM message, such as an ATM setup message, is provided from the customer location to the associated ATM edge switch of the ATM network 18. For example, if the calling party location 20 desires to establish ~~an~~ a SVC through the ATM network 18, an ATM setup message may be sent from the calling party location 20 to the ATM edge switch 14. This ATM setup message may be used to designate that this SVC is being setup or established to provide VToA. In one embodiment, an ATM setup message is sent from the calling party location 20 to the ATM edge switch 14 using a predefined or predetermined protocol such that a designated value, which may be referred to as a VToA designator, is included in the content or payload

of the ATM setup message to indicate that this SVC is being set up or established to support VToA.

Please amend the paragraph starting on page 18, line 17, as follows.

In one embodiment, the telephony device 24 is provided as a telephone or personal computer with telephony software, and the CPE 26 is provided as an enterprise gateway that is provisioned with a special ATM address to identify the CPE 26 as an ATM device. An ATM setup message may be generated by a calling party by using the telephony device 24 to enter a phone number, which may be referred to as a called party phone number value. The CPE 26 generates the ATM setup message, which may be referred to as an input ATM setup message, in response to initiate ~~an~~ a SVC for VToA by saving various values in the content of the ATM setup message.

Please insert the following before the table on page 19.

Table 1

Please amend the paragraph starting on page 19, line 26, as follows.

This input ATM setup message is then provided to the ATM network 18 at the ATM edge switch 14. In essence, this ATM setup message instructs the ATM network 18 to setup ~~an~~ a SVC between the ATM address of the CPE 26 and the special or designated ATM address that is provided as the called party number of the ATM setup message. This special or designated ATM address or number may also be referred to as a VToA designator. This is a predetermined or predefined number which will be used by the intelligent network 12 to indicate that this setup message request for ~~an~~ a SVC is to provide VToA and hence the advance telephony services or features of the present invention should be applied by the intelligent network 12.

Please amend the paragraph starting on page 20, line 24, as follows.

Once it is determined that the signaling message is a request to setup or establish ~~an~~ a SVC for VToA, the intelligent network 12 will, preferably, perform as much processing as possible on the ATM setup message at the ingress ATM edge

switch. Before discussing some of the various intelligent network services or features that may be provided by the present invention, the processing of the input ATM setup message is discussed. In one embodiment, the intelligent network 12 locates the called party phone number value and performs a table search or "look-up" to determine a corresponding ATM address, such as the ATM address for a destination CPE or device, such as a termination gateway, an enterprise gateway or a network gateway. This ATM address may be referred to as the ATM address of the called party CPE. In a preferred embodiment, the called party phone number value is retrieved from the called party subaddress parameter to perform the necessary functions to find the associated destination ATM address. Once located, this destination ATM address may be provided so that a modified or output ATM setup message may be generated to establish ~~an~~ a SVC to support VToA from the CPE 26 to the destination ATM device. In a preferred embodiment, the calling party phone number value is stored in the calling party subaddress parameter of the input ATM setup message, and the ATM address of the calling party CPE or device is stored in the calling party number parameter of the input ATM setup message.

Please amend the paragraph starting at page 22, line 33, as follows.

The ASIP 40 and the ASIP 42, generally, function to intercept ATM signaling messages, such as an ATM setup message, an ATM connect message, and an ATM release message. The ASIP 40 and the ASIP 42 intercept and process ATM signaling messages from the associated switch whether the signaling messages are provided from the device side or from the network side of the associated ATM edge switch. It should be noted that the ASIP 40 and the ASIP 42 are both capable of or operable to receive signaling messages provided through their associated ATM edge switch in either direction. For example, although the call setup illustrated in FIGURE 1 illustrates a VToA call that originates at the calling party location 20 and terminates at the called party location 22, the ASIP 40 and the ASIP 42 perform their functions when the ATM signaling messages are traveling in the opposite direction, such as if the called party location 22 originates a VToA call through ~~an~~ a SVC to the calling party location 20. Once the ATM signaling message, such as the input ATM setup

message, is intercepted, an input is generated by the ASIP and the input is provided to the associated MSCP, such as the MSCP 44 and the MSCP 46.

Please amend the paragraph starting on page 24, line 9 as follows.

To illustrate the operation of the intelligent network 12 to provide intelligent network functionality to the telecommunications network 10 and the ATM network 18, the establishment of ~~an~~ a SVC for VToA is illustrated next. Assuming that the calling party location 20 initiates the establishment or setup of an ATM SVC for VToA with the telephony device 28 of the called party location 22, the CPE 26 of the calling party location 20 responds to the request by the telephony device 24 to setup a phone call. The CPE 26 generates an input ATM setup message and provides this input ATM setup message to the ATM edge switch 14. The ATM edge switch 14 may be thought of as having a device side portion and a network side portion, just like the ATM edge switch 16. The input ATM setup message is received at the device side of the ATM edge switch 14 and is intercepted by the ASIP 40.

Please amend the paragraph starting on page 24, line 25, as follows.

The ASIP 40 processes the input ATM setup message and, using one or more of the various values that may be stored within or in association with the input ATM setup message, generates an input. The input is then communicated or provided to the MSCP 44. The MSCP 44 may provide any number of telephony services and features. The MSCP 44, however, must analyze the input to determine if the input ATM setup message is a request for ~~an~~ a SVC for VToA. In a preferred embodiment, a predefined or predetermined value is stored within the called party number parameter of the input ATM setup message. The value provided within this called party number parameter of the input ATM setup message is analyzed to determine if the input ATM setup message is requesting ~~an~~ a SVC for VToA. In one embodiment, the value stored within the called party number parameter of the input ATM setup message may be referred to as a VToA designator, i.e., designating that the input ATM setup message is a request for ~~an~~ a SVC for VToA. It should be understood, however, that any of a variety of ATM setup messages parameters may be used to

provide this functionality. The CPE 26, which originally generated the input ATM setup message, will store the appropriate VToA designator value within the appropriate parameter, such as the called party number parameter, when generating the input ATM setup message so that the appropriate MSCP associated with the ingress ATM edge switch will recognize the input ATM setup message as one requesting ~~an~~ a SVC for VToA.

Please amend the paragraph starting on page 5, line 25 as follows.

If the VToA designator is not found, the MSCP 44 will provide an output to the ASIP 40 and the ATM setup message will continue as if a request is being made to establish or setup ~~an~~ a SVC for a data transfer. If the VToA designator is found, additional service and feature processing may proceed. In order for the SVC for VToA to be established, a called party phone number value, which will be included as part of the input from the ASIP 40, will need to correlated by the MSCP 44 with a corresponding value that is equal to the ATM address of the called party CPE, which is in this case is the CPE 30. If the called party phone number value is not found, the call may fail or be rejected. The ATM address of the called party CPE and the called party phone number value, along with any other values generated as a result of the processing that may have occurred through any of a variety of services and features that may be provided by the MSCP 44, results in the MSCP 44 generating an output. The output is received and used by the ASIP 40 to generate or assemble an output ATM setup message.

Please amend the paragraph starting on page 28, line 28, as follows.

The ingress ATM edge switch 104 receives the input ATM setup message and communicates it to the ingress ASIP 106 as represented by a line 122. The ingress ASIP 106 provides various values and addresses contained within various parameters of the input ATM setup message and provides those values to the ingress MSCP 108 as shown in a line 124. For example, the ingress ASIP 106 may provide the VToA designator, which may be stored in the called party number parameter of the input ATM setup message, and the called party phone number value, which may be stored

A16 Cont.

in the called party subaddress parameter of the input ATM setup message, to the ingress MSCP 108. The VToA designator is used in the present invention to indicate that a setup message is requesting to set up ~~an~~ a SVC for VToA.

Please amend the paragraph starting on page 29, line 10, as follows.

After the ingress MSCP 108 confirms, by analyzing the value of the VToA designator, that ~~an~~ a SVC for VToA is requested, the ingress MSCP 108 may perform any of a variety of advanced telephony functions to provide VToA services and features as desired or requested. If a VToA designator is not found by the MSCP 108 during setup, an ATM data call may be assumed. The ingress MSCP 108 may provide any of a variety of advanced telephony functions to provide VToA services and features. Example of some of these services and features include Default Calling Party Number Handling ("DCH"), Source Address Validation ("SAV"), Customer Port Maximum Call Attempt Rate Limit ("CMR"), Closed User Group ("CUG"), Destination Address Screening ("DAS"), Source Address Screening ("SAS"), Customer Port Maximum Burst Size Limit ("CMDS"), Customer Port Aggregate Bandwidth Limit ("CBW"), Customer Port Maximum Concurrent Calls in Progress Limit ("CMC"), Private Address Translation ("PAT"), Customer Port Service Class Selection ("CSCS"), and Point-to-Multipoint, Root-Initiated Connections ("P2MR"). Preferably, most of the intelligent network features and processing are performed at the ingress MSCP 108. In some cases, such as, for example, PAT, additional intelligent networking service or feature processing must be performed at other locations, such as the egress MSCP 116.

A17

Please amend the paragraph starting on page 31, line 11, as follows.

The CSCS feature provides a mechanism to configure the service classes available for a particular customer, which may be set up through an individual CLP. As an example, CSCS may support the capability to configure various classes of service such as Continuous Bit Rate ("CBR"), Variable Bit Rate, Non-Real Time ("VBR-NRT"), Variable Bit Rate, Real Time ("VBR-RT"), Unspecified Bit Rate ("UBR"), and Available Bit Rate ("ABR"). The P2MR feature or service allows for

A18

A18

point-to-multipoint VToA to be provided using ~~an~~ a SVC. These types of connections are unidirectional and, just as with point-to-point connections, can support virtually any type of content such as voice or video.

Please amend the paragraph starting on page 32, line 29, as follows.

A19

The egress MSCP 116 may provide various applications, logic, and the like to carry out any of a variety of advanced intelligent network features. The egress MSCP 116 may contain various data provided in tables or databases, or have the capability to access data external to the egress MSCP 116. It should also be noted that the features or services provided by the egress MSCP 116 and the ingress MSCP 108 may be achieved by the same MSCP. The ASIPs, however, will generally be associated or dedicated to each ATM edge switch that the ASIP serves. It should also be noted that although the egress MSCP 116 is shown in FIGURE 2 serving as an egress device 118, whenever the egress device 118 originates ~~an~~ a SVC for VToA over the ATM network 110, the egress MSCP 116 will generally function as just described for the ingress MSCP 108.

Please amend the paragraph starting on page 33, line 11, as follows.

A20

The egress device 118, just as with the ingress device 102 described above, may be virtually any available CPE device such as, for example, an enterprise gateway, a network gateway, or a telephony access device. If the egress device 118 is an enterprise gateway, the egress MSCP 116 will generally not modify the input provided to it from the egress ASIP 114 and thus the egress ASIP 114 will receive an output from the egress MSCP 116 that is the same or similar as the input. In such a case, the output ATM setup message is provided to the egress ATM edge switch 112 where it is then provided to the egress device 118 to establish ~~an~~ a SVC for VToA. This is represented by lines 138 and 140.

Please amend the paragraph starting on page 34, line 3, as follows.

A21

Once a party answers a telephony device, the egress device 118 generates an ATM connect message. This connect message is illustrated in FIGURE 2 by lines

142-162. The ATM connect message propagates through the ATM network 110 until a connection is made between the ingress device 102 and the egress device 118. The ATM connection message is processed, similar to the ATM setup message, such that the ingress and egress ASIPs and MSCPs intercept and analyze each such signaling messages. At this point, ~~an~~ a SVC has been established between the ingress device 102 and the egress device 118 through the ATM network 110 to provide VToA with intelligent network services and features. The MSCP and the ASIP may also provide call modeling to track various calls.

Please amend the paragraph starting on page 35, line 4, as follows.

The ASIP 302 interfaces with an ATM edge switch, not shown in FIGURE 3, and is capable of intercepting and receiving ATM message signals, such as ATM setup, connect, and release messages. When the ATM edge switch serves as the ingress ATM edge switch, the ASIP 302 receives ATM signaling messages from the device side of the ingress ATM edge switch. To establish ~~an~~ a SVC to provide VToA, the ingress ATM edge switch provides an input ATM setup message from its device side to the ASIP 302. In addition to the functions described next, the ASIP 302 may also provide call modeling functionality. The ASIP 302 receives the input ATM setup message and, in one embodiment, extracts various information, such as the called party phone number value and the VToA designator, and communicates this information to the MSCP 304 as an input. The communications link between the MSCP 304 and the ASIP 302 may be a local connection or it may be a remote or long distance link. In one embodiment, the called party phone number value is stored in the called party subaddress parameter of the input ATM setup message and the VToA designator is stored in the called party number parameter of the input ATM setup message.

Please amend the paragraph starting on page 36, line 7, as follows.

The MSCP 304 receives the input from the ASIP 302 and can provide any number of VToA services and features. In order to establish ~~an~~ a SVC for VToA, the MSCP 304 must determine if the input, provided by the ASIP 302 from the input

ATM setup message, is a request to establish ~~an~~ a SVC for VToA. If not, processing of an ATM data call proceeds. The MSCP 304, in a preferred embodiment, determines that the input ATM setup message is requesting ~~an~~ a SVC to establish VToA by looking for the presence of the VToA designator. If present, the MSCP 304 uses the database 312 to determine the ATM address of the called party CPE using the called party phone number value provided as an input from the ASIP 302. The MSCP 304 may provide any of a variety of additional services and features, such as those described above in connection with FIGURE 2, and will, generally, use the applications 310 and the database 312 to achieve these services and features. The MSCP 304 generates an output in response to the processing just described and communicates this output to the ASIP 302. If a VToA is to be set up, the output will generally include at least the called party phone number value and the ATM address of the called party CPE.

Please insert the following before the table on page 38.

Table 2

Please insert the following before the table on page 39.

Table 3

Please insert the following before the table on page 47.

Table 4

Please insert the following before the table on page 48.

Table 5

Please insert the following before the table starting on page 49, line 1 (first table).

Table 6

Please insert the following before the table starting on page 49, line 7 (second table).

Table 7

Please insert the following before the table on page 50.

Table 8

Please insert the following before the table on page 51.

Table 9

Please amend the paragraph starting on page 52, line 13, as follows.

The method 800 proceeds next to block 812 where information is extracted from the input ATM setup message. This information will include the VToA designator and the called party phone number, which were stored and/or generated with the input ATM setup message at block 806. In a preferred embodiment, the acts described in block 812 will be performed by an ASIP. Once the information has been extracted, the method 800 proceeds next to block 814. At block 814, the information is analyzed to determine if the VToA designator is present. In a preferred embodiment, this will be performed by an MSCP. If the VToA designator is found or is present in the information extracted from the input ATM setup message, this indicates that a request is being made for a VToA call using ~~an~~ a SVC of the ATM network.